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FEE TRANSMITTAL For FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

Complete if Known

| | |
|----------------------|------------------------|
| Application Number | 10/756,982 |
| Filing Date | January 14, 2004 |
| First Named Inventor | Susumu Inatsugu et al. |
| Examiner Name | Huedung X. Cao |
| Art Unit | 2821 |
| Attorney Docket No. | MAT-8498US |

TOTAL AMOUNT OF PAYMENT (\$) 500

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 18-0350 Deposit Account Name: RatnerPrestia

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

| Application Type | FILING FEES | | SEARCH FEES | | EXAMINATION FEES | | Fees Paid (\$) |
|------------------|-------------|-----------------------|-------------|-----------------------|------------------|-----------------------|----------------|
| | Fee (\$) | Small Entity Fee (\$) | Fee (\$) | Small Entity Fee (\$) | Fee (\$) | Small Entity Fee (\$) | |
| Utility | 300 | 150 | 500 | 250 | 200 | 100 | — |
| Design | 200 | 100 | 100 | 50 | 130 | 65 | — |
| Plant | 200 | 100 | 300 | 150 | 160 | 80 | — |
| Reissue | 300 | 150 | 500 | 250 | 600 | 300 | — |
| Provisional | 200 | 100 | 0 | 0 | 0 | 0 | — |

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 (including Reissues)

Each independent claim over 3 (including Reissues)

Multiple dependent claims

| Small Entity | |
|--------------|----------|
| Fee (\$) | Fee (\$) |
| 50 | 25 |
| 200 | 100 |
| 360 | 180 |

Total Claims - 20 or HP = _____ x _____ = _____ Fee Paid (\$)

HP = highest number of total claims paid for, if greater than 20

Indep. Claims - 3 or HP = _____ x _____ = _____ Fee Paid (\$)

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets - 100 = _____ Extra Sheets / 50 = _____ (round up to a whole number) x _____ = _____ Fee Paid (\$)

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Appeal/Brief

Fees Paid (\$)

500

SUBMITTED BY

Complete (if applicable)

| | | | | |
|-------------------|---------------------------------|--------|-----------|--------------------|
| Signature | Registration No. Attorney/Agent | 34,515 | Telephone | (610) 407-0700 |
| Name (Print/Type) | Lawrence E. Ashery | | Date | September 12, 2006 |

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Application No.: 10/756,982
Appeal Brief Dated: September 11, 2006

MAT-8498US



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No: 10/756,982
Appellants: Susumu Inatsugu et al.
Filed: January 14, 2004
Title: ANTENNA
TC/A.U.: 2821
Examiner: Huedung X. Cao
Confirmation No.: 3712
Docket No.: MAT-8498US

APPEAL BRIEF

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to the Notice Of Appeal dated **June 12, 2006**, Appellants are submitting this Appeal Brief for the above-identified application.

I. REAL PARTY IN INTEREST

The real party in interest is Matsushita Electric Industrial Co., Ltd.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 5-8 and 11-14 are pending.

Claims 5-7 and 11-13 are rejected and claims 8 and 14 are allowed.

IV. STATUS OF AMENDMENTS

An Amendment subsequent to the Final Rejection was filed on January 10, 2006. The Amendment has been entered for proposes of appeal. Appellants believe that the Examiner in the Second Advisory Action mailed May 16, 2006, incorrectly indicates that claims 5-7 and 11-13 were objected to. Appellants believe that, based on the First Advisory Action mail March 28, 2006, the Examiner meant to reject these claims.

V. SUMMARY OF THE INVENTION

The present invention relates to an antenna for receiving a current. An exemplary antenna is illustrated as antenna 3 in Appellants' Fig. 3 (Specification, page 3, line 6). As illustrated by Appellants' exemplary embodiment shown in Fig. 1, Appellants' exemplary antenna includes a flat plate conductive ground plane 1 (Specification, page 7, line 8) and a first antenna element 13 with one end 13a connected to the feeding point 2. (Specification, page 7, lines 11-12.) The first antenna element 13 has an intermediate portion 13b extended upward from the ground plane 1. The intermediate portion 13b is folded a plurality of times. (Specification, page 7, lines 12-15.) A second antenna element 23 has one end 23a similarly connected to the other end 13c of the first antenna element 13 by connecting point 4. (Specification, page 7, lines 15-18.) The second antenna element 23 also has an intermediate portion 23b extended upward from the ground plane 1. (Specification, page 7, lines 15-17.) The intermediate portion 23b is also folded a plurality of times (i.e., the same as the intermediate portion 13b). (Specification, page 7, lines 17-19.) The other end 23c of the second antenna element 23 is electrically connected to the ground plane 1. (Specification, page 7, lines 19-20.) Each line length of the first and second antenna elements 13 and 23 is an electric length of over $\frac{1}{4}$ wavelength in overall length as relative to the frequency band of high-frequency current supplied. (Specification, page 9, lines 2-9.) The first antenna element 13 and the second antenna element 23 are arranged in opposing and symmetrical relation with each other. Substrate 7 provides a predetermined spacing between the first and second antenna element 13 and 23. (Specification, page 7, line 24 to page 8, line 5.) The intermediate portion of the first antenna element 13 is disposed on one surface of the substrate 7, while the intermediate portion of the second antenna element 23 is disposed on the other surface opposed to the

surface of the substrate 7 on which the intermediate portion of the first antenna element 13 is disposed. (Appellants' Fig. 1 and Specification, page 4, lines 1-17.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Claims 5-7 under 35 U.S.C. §102(e) as being anticipated by Saito (US 6,456,246).

2) Claims 11-13 under 35 U.S.C. §103(a) as being unpatentable over Saito and in view of Hai et al. (US 5,481,271).

VII. ARGUMENT

A. Rejections of Claims 5-7 under 35 U.S.C. §102(e)

1. Legal Standard

Anticipation requires that each and every limitation of the claim be disclosed, either expressly or under principles of inherency, in a single prior art reference. *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Absence from the reference of any claimed limitation negates anticipation. *Rowe v. Dror*, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997). Inherency requires that the missing descriptive material be necessarily present, not merely probably or possibly present, in the prior art. *Rosco, Inc. v. Mirror Lite Co.*, 64 USPQ2d 1676, 1680 (Fed. Cir. 2002).

2. Argument

a. Discussion of the rejection

In response to the first Official Action, Appellants amended claim 5 to recite:

... wherein said first and second antenna elements each have an electrical length of over ¼ wavelength.

(Emphasis added) In the Final Office Action mailed January 10, 2006, the Examiner asserted that the limitation "said first and second antenna elements each have an electrical length of over $\frac{1}{4}$ wavelength" was met by Saito at column 1, lines 25-32. The Examiner further asserted in the Advisory Action mailed May 16, 2006 that the reference (i.e., Saito) is directed to:

a 'one wavelength loop antenna' rather than just the $\frac{1}{4}$ wavelength of the Prior Art shown in figure 16. Thus, this would appear to meet the claim limitation. further (sic), even if it didn't explicitly, it is clear that various size antenna can be used depending upon the desired application.

b. Saito does not disclose or suggest Appellants' invention

Appellants disagree with the Examiner. Appellants claim an antenna in which "first and second antenna elements each have an electrical length of over $\frac{1}{4}$ wavelength" This feature is not found in Saito as set forth below.

Saito illustrates, with respect to Prior Art FIGS. 14, 15 and 16, the effect of a ground plane (conductor) for a loop antenna. In particular, Saito's Prior Art figures disclose that a one-wavelength loop antenna 1 is miniaturized to a half-wavelength antenna 1a by the use of a ground plane 3 which effectively acts as a mirror to provide the equivalent of a one-wavelength loop antenna with a reduced length. (See Saito at Col. 1, lines 10-32.) This ground conduct is used with all of the embodiments of the Saito invention which allows the one-wavelength device of Saito to be miniaturized (i.e., to a half-wavelength) and to be used in a mobile communication portable radio. (See Saito at Col. 2, lines 33-35.) That is, all of the embodiments of the Saito invention (i.e., FIGS. 1A, 1B, 3A, 3B, 4A, 4B, 4C, 5A, 5B, 6A, 6B 7A, 7B, 8, 9A, 9B, 10A, 10B, 10C, 11A, 11B, 12A, 12B) are half-wavelength antennas with a ground plane. This is clear from a review of the Saito claims. Each independent claim in Saito includes the limitation of a "closed one-wavelength loop antenna" which includes a grounding conductor with a short-circuit portion. The short circuit portion (i.e., grounding conductor 3) is substantially perpendicular to the axis of first and second spiral conductors 5L and 5R. By providing such a grounding conductor, the miniaturizing effect shown in Figs. 14-16 is achieved.

Thus, like that of the Prior Art to Saito shown in FIG. 16 of the Saito reference, each of the antennas of the Saito inventions is a one-wavelength loop antenna with an electrical length of a half-wavelength for: (1) the first spiral-like conductor 5L; (2) the second spiral-like conductor 5R; and (3) third conductor 6a due to the use of the grounding conductor 3. That is, the grounding conductor 3 acts electrically as the other half-wavelength to produce a one-wave-length closed loop antenna. It is also clear that since the electrical length of the first spiral-like conductor 5L and the second spiral-like conductor 5R and third conductor 6a is a half-wavelength, it is not possible in Saito for each of the first and second spiral-like conductors 5L and 5R to have an electrical length of over ¼ wavelength. This is because the total electrical length of the first and second spiral-like conductors 5L and 5R and third conductor 6a would have to exceed a half-wavelength.

Accordingly, as Saito lacks Appellants' ¼ wavelength electrical length, claim 5 is patentable over the art of record.

Claims 6 and 7 are allowable by virtue of their dependency on allowable claim 5.

B. Rejection of claims 11-13 under 35 U.S.C. § 103(a)

1. Legal Standard

Obviousness is analyzed using the four step analysis promulgated by the Supreme Court in *Graham v. John Deere*. "Under 103, [1] the scope and content of the prior art are to be determined; [2] differences between the prior art and the claims at issue are to be ascertained; and [3] the level of ordinary skill in the pertinent art resolved." *Graham v. John Deere*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966) (numbering of steps inserted). If the teachings of a prior art reference would lead an artisan to make a modification which would render another prior art device inoperable, then such a modification would generally not be obvious. *In re Fritch*, 23 USPQ2d 1780 at n.12 (Fed. Cir. 1992); *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir.

1992). Motivation to combine the references must also be shown. *In re Rouffet*, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998); *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Three possible sources for a motivation to combine references have been given: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *Id.* As long as some motivation or suggestion to combine the references is provided by the prior art as a whole, the references need not be combined for the reasons contemplated by the inventor. *In re Beattie*, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (citing cases).

Against this background, the obviousness or non-obviousness of the subject matter is determined.

2. Argument

a. Discussion of the rejection

In response to the first Official Action, Appellants added new claims 11-13 which ultimately depend on claim 5, and recite:

said first and second antenna elements each have an electrical length of $5/4$ wavelength relative to said frequency band of said current.

In the Final Office Action mailed January 10, 2006, the Examiner acknowledged that Saito did not explicitly disclose such a limitation. The Examiner, however, asserted that "Hai teaches (sic) such antenna elements each have an electrical length of $5/4$ wavelength is widely used in the art (Hai, see abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Saito's antenna system with antenna elements each have (sic) an electrical length of $5/4$ wavelength, as taught by Hai doing so it would improve the transmission range of the transmission distance."

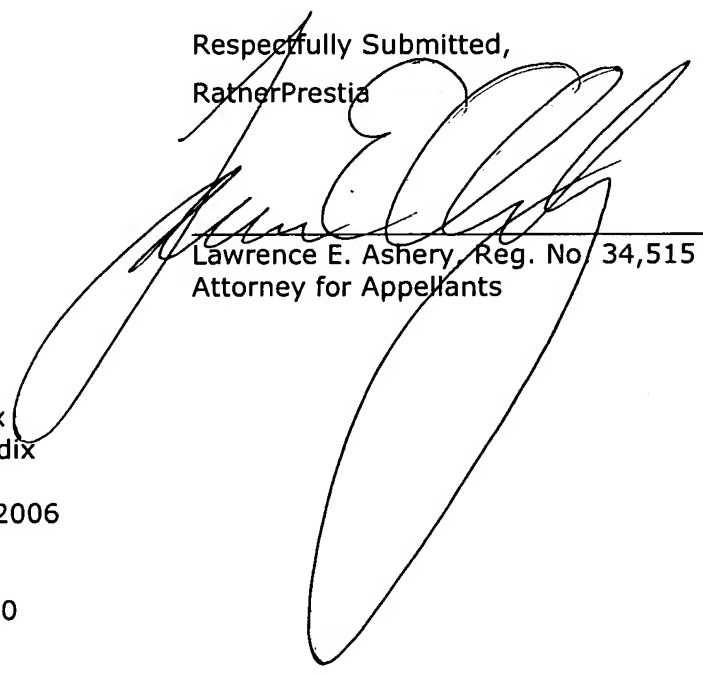
Claims 11-13 are patentable over Saito by virtue of their dependency on claim 5. The addition of Hai does not overcome the deficiencies of Saito because the combination produces an inoperable device.

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Allowance of the above-identified application is respectfully requested.

Respectfully Submitted,
Rather Prestia



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EB/eb/ds

Enclosures: Claims Appendix
Evidence Appendix

Dated: September 12, 2006

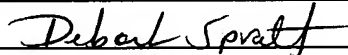
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September 12, 2006

Deborah Spratt



eb/58527

APPENDIX OF CLAIMS

1-4. (Cancelled).

5. (Previously Presented) An antenna for receiving a current, comprising:

a flat-plate ground plane;

a first antenna element with its one end connected to a feeding point and its intermediate portion folded by a plurality of times, which is extended upward from said ground plane; and

a second antenna element with its one end connected to the other end of said first antenna element and with the other end thereof connected to said ground plane, which has an intermediate portion extended upward from said ground plane, and

wherein said first and second antenna elements each have an electrical length of over $\frac{1}{4}$ wavelength relative to a frequency band of said current,

a substrate extended upward from said ground plane,

wherein the intermediate portion of said second antenna element is disposed in a symmetrical relation with the intermediate portion of said first antenna element,

wherein the intermediate portion of said first antenna element and the intermediate portion of said second antenna element are arranged symmetrically opposed to each other,

wherein the intermediate portion of said first antenna element is arranged on one surface of said substrate, and

the intermediate portion of said second antenna element is arranged on the other surface opposed to the substrate surface where the intermediate portion of said first antenna element is disposed.

6. (Original) The antenna of claim 5, further comprising:

a conductive plate,

wherein said conductive plate is arranged on one surface of said substrate being parallel to said ground plane, and

the other end of said first antenna element and one end of said second antenna element are connected to each other via said conductive plate.

7. (Original) The antenna of claim 6,

wherein said first antenna element and said second antenna element are formed of metal plates which are integral with said conductive plate.

8. (Previously Presented) An antenna, comprising:

a flat-plate ground plane;

a first antenna element with its one end connected to a feeding point and its intermediate portion folded by a plurality of times, which is extended upward from said ground plane; and

a second antenna element with its one end connected to the other end of said first antenna element and with the other end thereof connected to said ground plane, which has an intermediate portion extended upward from said ground plane, and

a substrate extended upward from said ground plane,

wherein the intermediate portion of said second antenna element is disposed in a symmetrical relation with the intermediate portion of said first antenna element,

wherein the intermediate portion of said first antenna element and the intermediate portion of said second antenna element are arranged symmetrically opposed to each other,

wherein the intermediate portion of said first antenna element is arranged on one surface of said substrate, and

the intermediate portion of said second antenna element is arranged on the other surface opposed to the substrate surface where the intermediate portion of said first antenna element is disposed,

a plurality of parasitic antenna elements having an intermediate portion same in shape as the intermediate portion of said first antenna element,

wherein each of said parasitic antenna elements are arranged in parallel relation to the surface where said first antenna element and said second antenna element are disposed, and

one end of said parasitic antenna element is connected to said ground plane with the other end opened.

9-10. (Cancelled)

11. (Previously Presented) The antenna of claim 5,

wherein said first and second antenna elements each have an electrical length of $5/4$ wavelength relative to said frequency band of said current.

12. (Previously Presented) The antenna of claim 6,

wherein said first and second antenna elements each have an electrical length of $5/4$ wavelength relative to said frequency band of said current.

13. (Previously Presented) The antenna of claim 7,

wherein said first and second antenna elements each have an electrical length of $5/4$ wavelength relative to said frequency band of said current.

14. (Previously Presented) The antenna of claim 8,

wherein said first and second antenna elements each have an electrical length of $5/4$ wavelength relative to said frequency band of said current.

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EVIDENCE APPENDIX

None